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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,327	06/27/2003	Raghuram Narayan	20002/14260	7986

7590 06/19/2006

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EXAMINER
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NGUYEN, TUAN N

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/608,327

Applicant(s)

NARAYAN, RAGHURAM

Examiner

Tuan N. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05/19/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8,9 and 11-21 is/are pending in the application.
- 4a) Of the above claim(s) 8,9 and 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-15 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/30/06; 1/03/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. Reference US 6700904 has been reviewed and included in the PTO 892.

**Claim Rejections - 35 USC § 103**

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or non-obviousness.
3. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sochava et al. (US 6665321).

With respect to claim 11 Sochava et al. '321 shows and discloses a method of operating an external optical transmitter including a gain chip (*Fig 1a, 13-15: 102 gain chip*) and an optical modulator coupled to a temperature controlled substrate having an associated temperature (*Fig 14: 1, 114 a wavelength selector or grating with reflector forming an optical resonant structure*) (*Fig 14: 1316, 518, TEC cavity optical transmitter with temperature control substrate*), the

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method comprising: maintaining the temperature controlled substrate, the gain chip and the optical modulator between a first temperature and a second temperature between which the optical modulator has an acceptable performance characteristic (*Fig 14: 1316 temperature control substrate, with gain chip 102, optical modulator 1408/1409/1312/114 between acceptable performance*); varying the temperature of the temperature controlled substrate, the gain chip and the optical modulator from the first temperature to the second temperature (*Fig 14: 1316 temperature control substrate, with gain chip 102, optical modulator 1408/1409/1312/114 between acceptable performance by feedback from earlier temperature*); measuring an operating current supplied to the gain chip as the temperature of the temperature controlled substrate, the gain chip and the optical modulator varies from the first temperature to the second temperature; determining an optimum temperature between the first temperature and the second temperature that corresponds to a minimum operating current; and maintaining the temperature of the temperature controlled substrate, the gain chip and the optical modulator at the optimum temperature. Sochava et al. '321 did not discretely disclose the use of operating current and compare to minimum operating current to compensate or optimize the temperature control of the substrate, chip, and modulator. However, it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art, in this case there is an inherent current and voltage feedback to optimize temperature control of the substrate, chip, and modulator (*Col 13: 55-67 temperature control from control loop or from output wavelength/photodiode 1326*) (*Fig 13-14: 102, 530, temperature controller*)(*Col 11: 25-67; Col 13: 1-67*)(*Col 12:1-10*).

With respect to claims 12-15, the claims further require the differences between temperatures is about two degrees centigrade, operating current or a derivative of the operating current as a function of temperature to determine optimal temperature control. Sochava et al. '321 discloses (Col 11: 25-67; Col 13: 1-67)(Col 12:1-10) (Fig 13: 530, Temperature control, I current) the optimal control of the external optical cavity by temperature feedback. It has been held that where the general conditions of a claim are disclosed in the prior art, disclosing the optimum or workable ranges involves only routine skill in the art, in this case the temperature range difference such that the cavity can operate optimally.

***Allowable Subject Matter***

4. Claim 16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The references of the record fail to teach or suggest the method *measuring the operating current and comparing it to the minimum operating current:*

**Claim 16:**

*If the difference between the operating current and the minimum operating current exceeds a predetermined threshold,*

(a) *varying the temperature of the substrate, gain chip, and optical modulator from the first to the second temperature, (b) measuring the operating current to gain chip as substrate, gain chip, and optical modulator temperature varies from the first and second temperature, (c) determining a second optimum temperature between first and second temperature corresponding*

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*to second minimum operating current*, and (d) maintain the substrate, gain chip, and modulator temperature at the second optimum temperature.

### **Conclusion**

5. The prior art made of record and relied upon is considered pertinent to applicant's discloses.

Amano (US 5267252), Ohtsuka et al. (US 544750), and Berger et al. (US 5181214) discloses temperature stable control of laser.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Communication Information***

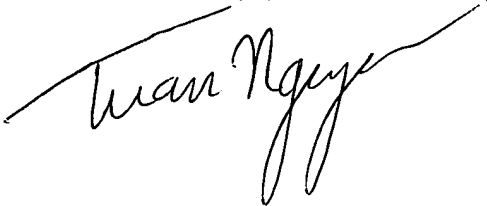
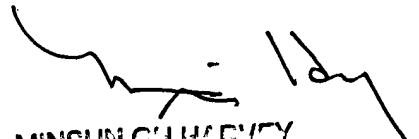
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen

A handwritten signature in black ink, appearing to read "Tuan Nguyen", with a long horizontal stroke extending to the left.A handwritten signature in black ink, appearing to read "Minsun Ch Harvey", with a long horizontal stroke extending to the left.  
**MINSUN CH HARVEY  
PRIMARY EXAMINER**